CLAIMS

1. A microfluidic device comprising a microchannel (2, 4), providing for liquid contact between an open microarea (MA) or chamber suitable for carrying a microvolume (1) of a solvent and a reservoir (3; 8) for the solvent, said reservoir (3; 8) and said microchannel (2, 4) being adapted so that solvent evaporated from said microarea (MA) is able to be continuously replaced by solvent from the reservoir (3; 8) through said microchannel (2, 4).

2. The microfluidic device according to claim 1 wherein
   a) said reservoir (3; 8) is positioned so as to create an overpressure in the solvent which is in equilibrium with the interfacial pressure difference across the curved surface of the droplet, or
   b) said reservoir (3; 8) is connected to pump means that either facilitate replacement of solvent by pumping solvent or pressurising the reservoir (3; 8).

3. The microfluidic device according to anyone of claims 1-2 comprising a plurality of microchannels (3; 8) and open chambers forming an array in the circular or rectangular format.

4. The microfluidic device according to anyone of claims 1-3, wherein the microvolume contains one or more reactants that are soluble in the solvent or bound to a solid support in contact with the microvolume.

5. The microfluidic device according to claim 4 wherein at least one of said one or more reactants is an affinity reactant, for instance selected from nucleic acids, peptides, proteins.

6. A method for replacing solvents evaporating from a microvolume of solvent placed in an open microarea (MA) of a microfluidic device, characterised in that that replac ment is continuously taking place via a microchannel (2, 4) that transports liquid to the microarea (MA) from a liquid reservoir (vessel) (3; 8).

7. Th method of claim 6, characterised in that the microarea (MA), microchannel (2, 4) and reservoir are parts of the microfluid device defined in claims 1-5.

8. Method for replacing solvents for preventing samples from becoming desiccated characterised in that it comprises the following steps:
providing a microarea (MA) for receiving a sample;
connecting the microarea (MA) to a reservoir (3; 8) of solvent by a microchannel (2, 4);
applying the sample to the microarea (MA);
allowing solvent to evaporate from said microarea (MA); and
continuously replacing said evaporated solvent with solvent from said reservoir (3; 8).

9. Method in accordance with claim 8 characterised in that it comprises the additional step of:
anchoring the sample to the microarea (MA).